

AMENDMENT TO THE CLAIMS

Pursuant to 37 CFR 1.121, presented below are pending claims 1-30 having status identifiers. Claims 1-14 and 22-30 were withdrawn pursuant to a Restriction requirement and Election. Claims 15-21 were elected. Please amend claims 15 and 16 as follows. New claims 31-39 are also presented. No new matter has been added.

We claim:

1. (Withdrawn)

2. (Withdrawn)

3. (Withdrawn)

4. (Withdrawn)

5. (Withdrawn)

6. (Withdrawn)

7. (Withdrawn)

8. (Withdrawn)

9. (Withdrawn)

10. (Withdrawn)

11. (Withdrawn)

12. (Withdrawn)

13. (Withdrawn)

14. (Withdrawn)

15. (Currently amended) A spindle motor ~~for withstanding shock~~ comprising:

a journal defined between an inner component and an outer component, wherein the inner component and the outer component are positioned for relative rotation;

a fluid recirculation passageway including a first fluid passageway defined within the outer component, the first fluid passageway in fluid communication with a second fluid passageway, the second fluid passageway defined between the outer component and a radial member extending radially from the inner component, wherein the first fluid passageway and the second fluid passageway are in fluid communication with the journal at separate locations;

~~means for creating an asymmetric pressure gradient to circulate fluid and to purge air in the fluid, wherein the fluid substantially circulates about the journal, the first fluid passageway, and the second fluid passageway;~~

a shield, affixed to one of a stationary component and a rotatable component, defining a reservoir with the outer component, wherein a recirculation plenum is defined by a junction joining the reservoir, the first fluid passageway and the second fluid passageway; and

means for sealing the reservoir.

16. (Currently amended) The spindle motor as in claim ~~15~~ 34, wherein:

means for creating the asymmetric pressure gradient, circulating fluid and purging air comprises spiral grooves defined on the radial member to generate pumping pressure to drive fluid recirculation and to pump fluid from the second fluid passageway toward the inner component and into the journal, when the inner component and the outer component are in relative rotational motion; and

means for sealing the reservoir comprises at least one of a capillary seal defined between the shield and the outer component, and a grooved pumping seal formed by spiral grooves on the radial member adjacent to an outer diameter gap defined between the shield and an outer diameter of the radial member, the outer diameter gap joining the recirculation plenum junction.

17. (Original) The spindle motor as in claim 15, wherein the reservoir is structured to hold up to 2.5 mg. of fluid.

18. (Original) The spindle motor as in claim 15, further comprising axial channels on at least a portion of an inner surface of the shield substantially extending from the recirculation plenum and along the reservoir, to allow air within the fluid to move along the channels and be purged from the fluid, and to retain fluid.

19. (Original) The spindle motor as in claim 15, further comprising a fill-hole defined within the shield, wherein a meniscus is positioned between the fill-hole and the fluid in the reservoir, the fill hole making an angle with a surface of the shield.

20. (Original) The spindle motor as in claim 15, wherein the inner component is affixed to a base and to a top cover plate, wherein the outer component rotates relative to the inner component.

21. (Original) The spindle motor as in claim 15, wherein an engagement interface of the radial member with a base ranges from ranges from 3 millimeters to 5 millimeters, for dynamic parallelism.

22. (Withdrawn)

23. (Withdrawn)

24. (Withdrawn)

25. (Withdrawn)

26. (Withdrawn)

27. (Withdrawn)

28. (Withdrawn)

29. (Withdrawn)

30. (Withdrawn)

31. (New) The spindle motor as in claim 15, wherein the inner component comprises a shaft and the outer component comprises a sleeve.

32. (New) The spindle motor as in claim 15, wherein the first fluid passageway is a sleeve passageway.

33. (New) The spindle motor as in claim 15, wherein the radial member is a thrust plate and the second fluid passageway is a thrust plate bearing passageway.

34. (New) The spindle motor as in claim 15, further comprising means for creating an asymmetric pressure gradient within the fluid recirculation passageway, circulating fluid and purging air in the fluid, wherein the fluid substantially circulates about the journal, the first fluid passageway, and the second fluid passageway

35. (New) The spindle motor as in claim 15, wherein the shield and the outer component form adjacent surfaces that are relatively tapered and converge toward the recirculation plenum.

36. (New) The spindle motor as in claim 15, wherein the shield is positioned for serving as a travel limiter to the outer component.


37. (New) The spindle motor as in claim 15, further comprising a symmetrical grooving pattern included on a portion of one of the inner component and the outer component comprising one of a herringbone pattern and a sinusoidal pattern for providing radial stiffness substantially focused at an apex of the grooving pattern.

38. (New) The spindle motor as in claim 15, further comprising an asymmetrical grooving pattern on an axial end of one of the inner component and the outer component, for providing radial stiffness substantially focused at an apex of the asymmetrical grooving pattern, and for generating pressure substantially equivalent to the pressure located at a journal plenum, wherein the journal plenum is positioned between the asymmetric grooving pattern and the radial member and defined at a joining position of the first fluid passageway and the journal.

39. (New) The spindle motor as in claim 15, further comprising a variable journal gap for providing asymmetric journal pressure distribution, wherein the variable journal gap is radially wider substantially adjacent to a journal plenum as compared to the remainder of the journal, wherein the journal plenum is defined at a joining position of the first fluid passageway and the journal.

Respectfully submitted,
THE WAX LAW GROUP

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By: 
Jeffrey S. Wax
Reg. No. 51,364
Tel. (310) 312-1500

Jeffrey S. Wax
Wax Law Group
2118 Wilshire Boulevard
Suite 407
Santa Monica, California 90403

Tel. (310) 312-1500

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on February 28, 2006.


Virginia Wilson

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